



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,984	03/26/2004	James Steven Collins	30521/3073	9616
4743	7590	10/30/2006	EXAMINER	
MARSHALL, GERSTEIN & BORUN LLP 233 S. WACKER DRIVE, SUITE 6300 SEARS TOWER CHICAGO, IL 60606			ENSEY, BRIAN	
			ART UNIT	PAPER NUMBER
			2615	

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/809,984	COLLINS, JAMES STEVEN
	Examiner	Art Unit
	Brian Ensey	2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 19 August 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-10 and 19-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-10 and 19-36 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 2, 6, 7, 19, 21, 28 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by van Halteren et al. U.S. Patent No. 6,084,972.

Regarding claim 1, van Halteren discloses a microphone assembly (1) comprising: a microphone housing unit having a cover (11) and a base (10); a preamplifier circuit assembly (100) fixedly attached to the base and protected by the cover, the preamplifier circuit assembly having at least one terminal (5,6,7) unprotected by the cover; and a radio frequency interference suppression device electrically coupled to the preamplifier circuit, wherein the radio frequency interference suppression device includes: at least one internal ground (4 and 7') electrically coupled to the at least one terminal (7), and wherein the at least one internal ground provides a ground path between the cover and the base (See Fig. 1A and 1B, col. 2, lines 65-67 and col. 3, lines 24-41 and 62-67).

Regarding claim 2, van Halteren further discloses a mounting frame (15) fixedly attached to the base and adapted to support the preamplifier circuit assembly (See Fig. 1 and col. 2, lines 57-67).

Regarding claim 6, van Halteren further discloses the at least one internal ground (4 and 7') includes a first internal ground communicatively coupled to the base, and a second internal ground communicatively coupled to the cover (See Fig. 1A and 1B, col. 2, lines 65-67 and col. 3, lines 24-41 and 62-67).

Regarding claim 7, van Halteren discloses a microphone assembly (1) comprising: a microphone housing base (10) adapted to support a diaphragm assembly (14) within an interior; a mounting frame (15) fixedly attached to the microphone housing base and adapted to support a preamplifier circuit assembly (100) having an external ground (7), wherein the preamplifier circuit assembly and the diaphragm assembly are electrically connected (17); a microphone housing cover (11) adapted to enclose the preamplifier circuit assembly; a first internal ground (4) electrically coupled to the microphone housing cover and the external ground; and a second internal ground (7') electrically coupled to the microphone housing base and the first internal ground, wherein the first internal ground and the second internal ground cooperate with the microphone housing base and the microphone housing cover to suppress radio frequency interference (See Figs. 1 and 2 and col. 2, lines 57-67 and col. 3, lines 24-41 and 62-67).

Regarding claim 19, van Halteren discloses a transducer assembly (1) comprising: a housing having a cover (11) and a base (10), the housing defining an interior and an exterior; a transducer assembly (14) operatively disposed within the interior; a mounting frame assembly (15) secured to the base, and at least partially disposed within the interior; a preamplifier circuit assembly (100) coupled to the mounting frame assembly, the preamplifier circuit assembly having at least one terminal (5,6,7) disposed on the exterior, and the preamplifier circuit assembly being electrically coupled to receive an output of the transducer; and at least a first ground path (4), the first ground path electrically, conductively coupling the preamplifier assembly, the mounting frame and the base (See Figs. 1 and 2 and col. 2, lines 57-67 and col. 3, lines 24-41 and 62-67).

Regarding claim 21, van Halteren further discloses a second ground path (7') electrically, conductively coupling the preamplifier assembly to the cover (See col. 3, lines 51-67).

Regarding claim 28, van Halteren further discloses the first ground path (4) comprising at least one solder connection (See Fig 6A and col. 6, line 64 to col. 7, line 5).

Regarding claim 29, van Halteren further discloses the first ground path (4) being disposed in the interior (See Fig. 2 and col. 2, lines 57-67).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3-5, 8-10, 26, 27, 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Halteren in view of Lenzini et al. U.S. Patent No. 5,408,534.

Regarding claims 3-5 and 8-10, van Halteren does not expressly disclose the preamplifier circuit assembly is fixedly attached to the mounting frame using a conductive adhesive, wherein the adhesive includes a plurality of metallic flakes suspended therein. However, the use of conductive adhesives is well-known in the art and Lenzini teaches the use of a conductive adhesive to secure the microphone assembly in the housing and provides a conductive path to the housing from ground. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the conductive adhesive of Lenzini in the microphone assembly of van Halteren to provide a secure assembly and provide a redundant short to case ground (See Lenzini fig. 2 and col. 2, lines 58-66).

Regarding claims 26 and 27, van Halteren does not expressly disclose the preamplifier circuit assembly or the mounting frame is fixedly attached to the mounting frame using a

conductive adhesive, the conductive adhesive forming a portion of the first ground path. However, the use of conductive adhesives is well-known in the art and Lenzini teaches the use of a conductive adhesive to secure the microphone assembly in the housing and provides a conductive path to the housing from ground. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the conductive adhesive of Lenzini in the microphone assembly of van Halteren to provide a secure assembly and provide a redundant short to case ground (See Lenzini fig. 2 and col. 2, lines 58-66).

Regarding claims 32 and 33, van Halteren does not expressly disclose the preamplifier circuit assembly is fixedly attached to the mounting frame using a conductive adhesive, the conductive adhesive forming a portion of each of the first and the third ground paths or the mounting frame is fixedly attached to the base using a conductive adhesive, the conductive adhesive forming a portion of each of the first and the third ground paths. However, the use of conductive adhesives is well-known in the art and Lenzini teaches the use of a conductive adhesive to secure the microphone assembly in the housing and provides a conductive path to the housing from ground. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the conductive adhesive of Lenzini in the microphone assembly of van Halteren to provide conductive ground paths with conductive adhesives for space minimization and structural support.

3. Claims 20, 22-25, 30, 31 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Halteren.

Regarding claim 20, van Halteren discloses a transducer as claimed. Van Halteren further discloses the housing (10, 11) is conductive and connected to ground (7') (See col. 3, lines 62-67). Further, van Halteren discloses the housing base and cover clamp together the mounting

frame (15) (See fig. 2c). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the mounting frame of van Halteren comprises a conductive portion between the two housing components and forms a portion of the first ground path.

Regarding claims 22 and 23, van Halteren discloses a transducer as claimed. Van Halteren further discloses the housing (10, 11) is conductive and connected to ground (7') and the amplifier and connected to the terminal (7 through an inductor) (See col. 3, lines 51-67). Further, van Halteren discloses the housing base and cover clamp together the mounting frame (15) (See fig. 2c). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the terminal (7), the conductive mounting frame (15) and the amplifier (100) form a second electrical ground path (See Fig. 2c, left side, connection of the mounting frame 15 and amplifier 100).

Regarding claims 24 and 25, van Halteren discloses a transducer as claimed. Van Halteren further discloses the housing (10, 11) is conductive and connected to ground (7') and the amplifier and connected to the terminal (7 through an inductor) (See col. 3, lines 51-67). Further, van Halteren discloses the housing base and cover clamp together the mounting frame (15) (See fig. 2c). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the cover (11) and the conductive mounting frame (15) form a second electrical ground path (See Fig. 2c, left side, connection of cover 11 and mounting frame 15). Further, it would have been obvious to one of ordinary skill in the art at the time of the invention that a third conduction path is formed between the terminal (7), the mounting frame (15) and the amplifier assembly (100) (See Fig 2c, left side, terminal 7, amplifier 100 and mounting frame 15).

Regarding claim 30, van Halteren discloses transducer assembly (1) comprising: a housing having a cover (10) and a base (11), the housing defining an interior and an exterior; a transducer assembly (14) operatively disposed within the interior; a mounting frame (15) assembly secured to the base; a preamplifier circuit assembly (100) coupled to the mounting frame assembly, the preamplifier circuit assembly having at least one terminal (5,6,7) exposed externally of the housing, and the preamplifier circuit assembly being electrically coupled to receive an output of the transducer; and a first ground path, the first ground path electrically, conductively coupling the preamplifier assembly (100), the mounting frame (15) and the base (11), a second ground path electrically, conductively coupling the preamplifier assembly(100) to the cover (11) (See Fig. 2c and col. 2, lines 57-67 and col. 3, lines 24-41 and 62-67). Van Halteren does not expressly disclose a third ground path electrically, conductively coupling the terminal (7), the mounting frame (15) and the preamplifier assembly (100). Van Halteren further discloses the housing (10, 11) is conductive and connected to ground (7') and the amplifier and connected to the terminal (7 through an inductor) (See col. 3, lines 51-67). Further, van Halteren discloses the housing base and cover clamp together the mounting frame (15) (See fig. 2c). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that a third conduction path is formed between the terminal (7), the mounting frame (15) and the amplifier assembly (100) (See Fig 2c, left side, terminal 7, amplifier 100 and mounting frame 15).

Regarding claim 31, van Halteren does not expressly disclose the mounting frame comprises a conductive portion, and the first ground path and the third ground path each comprises the conductive portion. However, van Halteren discloses the housing (10, 11) is conductive and connected to ground (7') (See col. 3, lines 62-67). Further, van Halteren discloses

the housing base and cover clamp together the mounting frame (15) forming a ground path (See fig. 2c). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the mounting frame of van Halteren comprises a conductive portion between the two housing components and forms a portion of the first and third ground path.

Regarding claim 34, van Halteren further discloses any one of the first ground path (4), the second ground path or the third ground path comprises at least one solder connection (See Fig 6A and col. 6, line 64 to col. 7, line 5).

Regarding claims 35 and 36, van Halteren further discloses at least one of the first ground path, the second ground path or the third ground path being disposed in the interior and the first ground path and the third ground path being disposed in the interior (See Fig 2c and col. 2, lines 57-67, all the ground paths are internal to the housing).

Response to Arguments

Applicant's arguments filed 8/18/06 have been fully considered but they are not persuasive.

With respect to the applicant's argument that *The citations to the specification also do not discuss or refer to the cover or any form of ground coupling between the cover and any other portion of the microphone assembly*, the Examiner respectfully disagrees.

The Examiner asserts that Van Halteren teaches a microphone having both a cover (11) and a base (10) with an amplifier module (100) mounted in the cover and base (See Fig. 2). Van Halteren also teaches a high frequency ground (7') is connected with the conductive housing (base 10 and cover 11) (See col. 3, lines 62-64), but states that this feature is not illustrated for the sake of simplicity. Therefore, the Examiner asserts that Van Halteren clearly teaches at least

one internal ground electrically coupled to the at least one terminal, and wherein the at least one internal ground provides a ground path between the cover and the base and meets the limitations as claimed in claim 1.

With respect to the applicant's argument that *there is no illustration of an internal ground that couples to the cover, nor is there any discussion of such an internal ground contained in Van Halteren in connection with Fig. 2 or otherwise*, the Examiner disagrees.

The Examiner asserts that Van Halteren teaches a microphone having both a cover (11) and a base (10) with an amplifier module (100) mounted in the cover and base (See Fig. 2). Van Halteren also teaches a high frequency ground (7') is connected with the conductive housing (base 10 and cover 11) (See col. 3, lines 62-64), but states that this feature is not illustrated for the sake of simplicity. Further, Van Halteren teaches microphone connecting point (4) is a ground plane on the amplifier module (99, See Fig. 3) which connects to ground connection 7 through the circuit trace on the amplifier module circuit board (See Fig. 3). Ground connection 7 is an external connection pad for the microphone as illustrated in Fig 2B and is also the low frequency ground connection (7) coupled with the high frequency ground connection (7') via an inductor (not shown, See col. 3, lines 62-67). Therefore, Van Halteren clearly teaches an external ground (7); a microphone housing cover (11) adapted to enclose the preamplifier circuit assembly; a first internal ground (4) electrically coupled to the microphone housing cover and the external ground; and a second internal ground (7') electrically coupled to the microphone housing base and the first internal ground, wherein the first internal ground and the second internal ground cooperate with the microphone housing base and the microphone housing cover to suppress radio frequency interference (High frequency interference signals

shorted to ground) generated (See Figs. 1 and 2 and col. 2, lines 57-67 and col. 3, lines 24-41 and 62-67) and meets the limitations as claimed in claim 7.

With respect to the applicant's argument that *neither Figs. 2A-2C nor the discussion accompanying these figures discuss any structure for ground coupling these components*, the Examiner respectfully disagrees.

The Examiner asserts that Van Halteren teaches a microphone having both a cover (11) and a base (10) with an amplifier module (100) mounted in the cover and base (See Fig. 2). Van Halteren also teaches a high frequency ground (7') is connected with the conductive housing (base 10 and cover 11) (See col. 3, lines 62-64), but states that this feature is not illustrated for the sake of simplicity. Therefore, the Examiner asserts that Van Halteren clearly teaches "at least a first ground path (4, schematically shown in Fig. 1 and the ground plane connection on the circuit board of the amplifier module as mechanically illustrated in Fig. 3), the first ground path electrically, conductively coupling the preamplifier assembly, the mounting frame and the base as clearly described above **but not illustrated for the sake of simplicity** See col. 3, lines 62-64).

With respect to the applicant's argument that *Van Halteren nowhere teaches or suggests three distinct ground paths*, the Examiner respectfully disagrees.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392,

170 USPQ 209 (CCPA 1971). The Examiner asserts that Van Halteren clearly teaches a transducer assembly (1) comprising: a housing having a cover (10) and a base (11), the housing defining an interior and an exterior (See Figs. 2A-2C); a transducer assembly (14) operatively disposed within the interior; a mounting frame (15) assembly secured to the base; a preamplifier circuit assembly (100) coupled to the mounting frame assembly, the preamplifier circuit assembly having at least one terminal (5,6,7) exposed externally of the housing, and the preamplifier circuit assembly being electrically coupled to receive an output of the transducer (See col. 2, lines 61-67); and a first ground path (4), the first ground path electrically, conductively coupling the preamplifier assembly (100), the mounting frame (15) and the base (11), a second ground path electrically (7), conductively coupling the preamplifier assembly(100) to the cover (11) (See Fig. 2c and col. 2, lines 57-67 and col. 3, lines 24-41 and 62-67). Van Halteren does not expressly disclose a third ground path electrically, conductively coupling the terminal (7), the mounting frame (15) and the preamplifier assembly (100). Van Halteren further discloses the housing (10, 11) is conductive and connected to ground (7') and the amplifier and connected to the terminal (7 through an inductor) (See col. 3, lines 51-67). Further, van Halteren discloses the housing base and cover clamp together the mounting frame (15) (See fig. 2c). It is the opinion of the Examiner that considering the ground paths as disclosed by Van Halteren that a third conduction path is formed between the terminal (7), the mounting frame (15) and the amplifier assembly (100) (See Fig 2c, left side, terminal 7, amplifier 100 and mounting frame 15) and Van Halteren teaches all the limitations as claimed in claim 30.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Ensey whose telephone number is 571-272-7496. The examiner can normally be reached on Monday - Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
P.O. Box 1450
Alexandria, Va. 22313-1450

Or faxed to:

(571) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "PROPOSED" or "DRAFT".

Hand-delivered responses should be brought to:

Customer Service Window
Randolph Building
401 Dulany Street
Arlington, VA 22314

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BKE
October 20, 2006


SINH TRAN
SUPERVISORY PATENT EXAMINER